

REMARKS

This paper is responsive to the final Office Action dated April 8, 2003, having a shortened statutory period expiring July 8, 2003, wherein:

Claims 1-39 were previously pending in the application; and

Claims 1-39 were rejected.

Claims 1, 10, 16, 22, and 31 have been amended; No claims have been added or cancelled by the current response. Accordingly, claims 1-39 remain currently pending in the present application. Attached hereto is a marked-up version of the changes made to the claims by the current response. The attached page is captioned “**VERSION WITH MARKINGS TO SHOW CHANGES MADE**”.

Formal Matters

Applicants wish to express their appreciation for the courtesies extended by the Examiner during the most-recent Examiner Interview Teleconference. While specific agreement as to Applicants’ claims was not reached, it is respectfully submitted that the amendments and remarks within the present response are in harmony with the positions expressed by the Examiner and Applicants’ representative during the Interview Teleconference and that the claims, as amended herein, are allowable over the Examiner’s cited references.

Rejection of Claims under 35 U.S.C. § 103

The present final Office Action includes rejections of claim 1-39 under 35 U.S.C. §103(a) identical to that found in the non-final Office Action dated October 24, 2002. As stated in the response to Office Action dated January 29, 2003, Applicants respectfully disagree and submit that the Examiner’s cited references, U.K. Patent No. 2,308,895, issued to Kawashima et al. (hereinafter, “**Kawashima**”), U.S. Patent No. 5,513,073, issued to Block et al. (hereinafter, “**Block**”), U.S. Patent No. 5,182,632, issued to Bechtel et al. (hereinafter, “**Bechtel**”) fail to teach, show, or suggest all elements of Applicants’ claims.

Response to Amendments/Arguments

In the present final Office Action, the Examiner addressed the remarks made by Applicants in the response to Office Action dated January 29, 2003, stating:

The claims do not define “structural structure features” that distinguish over the prior art: For example, the terms “high speed optical format data transmission as recited only in the preamble of claims 1 and 22 are not positively claimed. Therefore, the aforementioned terms do not add any patentable weight to the claims limitations. In regard to the argument that the heatsink interfacing with the electrical or optical, the heatsink is not a standalone system. The heatsink is connected to the flexible cable that is connected to the optical transducing assembly (see claims 1-14). Furthermore, in response to applicant’s argument that there is no suggestion to combine the references, the Examiner recognizes that references can not be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of the primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However there is no requirement that a motivation to make the modification be expressly articulated...References are evaluated by what they suggest to one versed in the art, rather that by their specific disclosures.

Applicants respectfully disagree and traverse the rejection as follows. As an initial matter, it is noted that Applicants have not relied on the described preamble elements of claims 1 and 22 to distinguish the Examiner’s cited references. As indicated in the most-recent Examiner Interview Teleconference, Applicants further submit that it is unclear from the Examiner’s statement that, “The heatsink is connected to the flexible cable that is connected to the optical transducing assembly (see claims 1-14)” to which of *Kawashima*, *Block*, or *Bechtel* the Examiner is referring. Accordingly, Applicants request that the Examiner cite with specificity which reference and which portion of the reference is being relied on as required by 37 C.F.R. §1.104(c)(2). Applicants will assume for purposes of responding to the present Office Action that the Examiner intended to indicate claims 1-14 of *Block*.

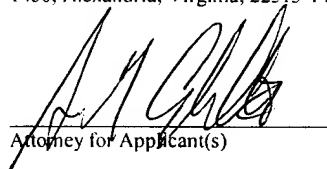
In light of the most-recent Examiner Interview Teleconference, Applicants have further clarified independent claims 1, 10, 16, 22, and 31 and accordingly submit that neither **Block** nor any of the Examiner's other cited references teach, show, or suggest "a printed circuit board assembly for high-speed optical format data transmission including:

...a heatsink attached to the printed circuit board wherein the heatsink directly interfaces with a plurality of the electrical and optical components.

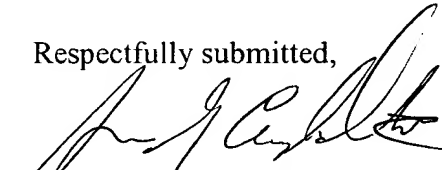
as required by Applicants' claim 1 (as amended) and generally required by claims 10, 16, 22 and 31. Claims 2-9 depend directly or indirectly from Applicants' claim 1 and are therefore allowable for at least those reasons stated for the allowability of claim 1. Applicants' claims 11-15, 17-21, 23-30, and 32-39 which depend from claims 10, 16, 22 and 31, respectively, are similarly allowable. Accordingly, Applicants respectfully submit that all claims, as amended, are allowable over the Examiner's cited references.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia, 22313-1450, on <u>7/18/03</u>	
 Attorney for Applicant(s)	<u>7/18/03</u> Date of Signature

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE*In the Claims*

1. **(Amended Two Times)** A printed circuit board assembly for high-speed optical format data transmission comprising:
- a printed circuit board;
 - a plurality of optical components mounted to the printed circuit board;
 - a plurality of electrical components mounted to the printed circuit board; and
 - a heatsink attached to the printed circuit board wherein the heatsink interfaces **directly** with a plurality of the electrical and optical components.
10. **(Amended One Time)** A method for dissipating heat from electrical components and optical components on a printed circuit board, the method comprising:
- determining an average height of the electrical components and the optical components with respect to the printed circuit board;
 - forming openings in the printed circuit board corresponding to at least some of the electrical components and optical components that are significantly higher than the average height;
 - embedding the at least some of the significantly higher electrical components and optical components in the openings in the printed circuit board; and
 - attaching a heatsink member to the printed circuit board so that the heatsink member is in **direct** contact with at least a portion of each electrical and optical component that requires cooling.
16. **(Amended Two Times)** A method for dissipating heat from electrical components and optical components on a printed circuit board, the method comprising:
- determining an average height of the electrical components and the optical components with respect to the printed circuit board;
 - forming openings in a heatsink corresponding to at least some of the electrical components and optical components that are significantly higher than the average height;

positioning the heatsink over the significantly higher electrical components and optical components on the printed circuit board; and
attaching a heatsink member to the printed circuit board so that the heatsink member is in **direct** contact with at least a portion of each electrical and optical component that requires cooling.

22. **(Amended Three Times)** A device for high-speed optical format data transmission comprising:

circuit board means for mounting electrical components, optical components, and a heatsink device;
a plurality of optical components mounted to the circuit board means;
a plurality of electrical components mounted to the circuit board means; and
heatsink means attached to the circuit board means for interfacing **directly** with, and dissipating heat from, a plurality of the electrical and optical components.

31. **(Amended One Time)** An apparatus comprising:

a printed circuit board;
an optical component mounted to the printed circuit board, wherein the optical component is operable to receive a digital data signal;
an electrical component mounted to the printed circuit board, wherein the optical component is operable to receive the digital data signal; and
a heatsink attached to the printed circuit board wherein the heatsink interfaces **directly** with the electrical component and the optical component.